

CLAIMS

1. A moving picture coding method for coding a moving picture signal on a picture-by-picture basis and generating a bit stream, comprising:
 - 5 an information creation step of creating variable speed reproduction information for specifying pictures to be reproduced at variable speed; and
 - a coding step of coding the variable speed reproduction information and adding said information to the bit stream.
- 10 2. The moving picture coding method according to Claim 1, wherein in the information creation step, the variable speed reproduction information is created for each random access unit that is made up of a plurality of pictures, said random access unit
15 being a unit in which a current picture to be decoded can be decoded with reference to another picture only in the random access unit.
- 20 3. The moving picture coding method according to Claim 1, wherein in the information creation step, the variable speed reproduction information is created by associating speeds for variable speed reproduction with information specifying the pictures to be reproduced at said speeds respectively.
- 25 4. The moving picture coding method according to Claim 3, wherein in the variable speed reproduction information, the speeds at which the pictures need to be decoded are described respectively according to picture numbers of said pictures.
- 30 5. The moving picture coding method according to Claim 3, wherein in the variable speed reproduction information, the speeds at which the pictures need to be decoded are described

respectively in sequence.

6. The moving picture coding method according to Claim 3,
wherein in the variable speed reproduction information,
5 picture numbers of pictures necessary for the reproduction at the
speeds are described for each of the speeds.

7. The moving picture coding method according to Claim 1,
wherein in the information creation step, an index is created
10 as the variable speed reproduction information, the index
specifying a corresponding reference relationship in a list of
predetermined reference relationships.

8. The moving picture coding method according to Claim 7,
15 wherein the list of predetermined reference relationships is
a map table having a plurality of sets of map information in which
speeds for variable speed reproduction are associated with
information specifying the pictures to be reproduced at said speeds
respectively, and
20 in the information creation step, an identifier for selecting
corresponding map information in the map table is created as the
variable speed reproduction information.

9. The moving picture coding method according to Claim 8,
25 wherein in the information creation step, the map table is
created, and
in the coding step, the map table is coded and added to the
bit stream.

30 10. The moving picture coding method according to Claim 1,
further comprising:
a detection step of detecting whether common information

needs to be coded or not, said common information being referred to by the pictures to be reproduced at variable speed; and

5 a common information addition step of adding the common information to the pictures when it is detected in the detection step that said information needs to be coded.

11. A moving picture decoding method for decoding a bit stream on a picture-by-picture basis, comprising:

10 an information extraction step of extracting variable speed reproduction information for specifying pictures to be reproduced at variable speed; and

15 a decoding step of decoding the variable speed reproduction information and specifying and decoding the pictures to be reproduced at variable speed based on the variable speed reproduction information.

12. The moving picture decoding method according to Claim 11, wherein in the information extraction step, the variable speed reproduction information is extracted from each random access unit that is made up of a plurality of pictures, said random access unit being a unit in which a current picture to be decoded can be decoded with reference to another picture only in the random access unit.

25 13. The moving picture decoding method according to Claim 11, wherein in the variable speed reproduction information, speeds for variable speed reproduction are associated with information specifying the pictures to be reproduced at said speeds respectively, and

30 in the decoding step, the pictures to be reproduced at instructed speeds are specified based on said instructed speeds and the variable speed reproduction information.

14. The moving picture decoding method according to Claim 13,
wherein in the variable speed reproduction information, the
speeds at which the pictures need to be decoded are described
5 respectively according to picture numbers of said pictures.

15. The moving picture decoding method according to Claim 13,
wherein in the variable speed reproduction information,
speeds at which the pictures need to be decoded are described
10 respectively in sequence.

16. The moving picture decoding method according to Claim 13,
wherein in the variable speed reproduction information,
picture numbers of pictures necessary for the reproduction at the
15 speeds are described for each of said speeds.

17. The moving picture decoding method according to Claim 11,
wherein the variable speed reproduction information is an
index specifying a corresponding reference relationship in a list of
20 predetermined reference relationships, and
in the decoding step, the corresponding reference
relationship is specified in the list of predetermined reference
relationships based on the index.

25 18. The moving picture decoding method according to Claim 17,
wherein the list of predetermined reference relationships is
a map table having a plurality of sets of map information in which
speeds for variable speed reproduction are associated with
information specifying the pictures to be reproduced at said speeds
30 respectively,

the index is an identifier for selecting corresponding map
information in the map table, and

in the decoding step, the pictures to be reproduced at instructed speeds are specified based on said instructed speeds, the map table and the identifier.

- 5 19. The moving picture decoding method according to Claim 18, wherein in the information extraction step, the map table is extracted, and
in the decoding step, the map table is decoded.

- 10 20. The moving picture decoding method according to Claim 11, further comprising a memory control step of controlling a picture on the assumption that the picture is stored in a picture memory when the reproduction is performed at variable speed, said picture being not to be reproduced at variable speed but referred to by
15 another picture.

21. A moving picture coding apparatus for coding a moving picture signal on a picture-by-picture basis and generating a bit stream, comprising:

- 20 an information creation unit operable to create variable speed reproduction information for specifying pictures to be reproduced at variable speed; and
a coding unit operable to code the variable speed reproduction information and adding said information to the bit
25 stream.

22. A moving picture decoding apparatus for decoding a bit stream on a picture-by-picture basis, comprising:

- an information extraction unit operable to extract variable
30 speed reproduction information for specifying pictures to be reproduced at variable speed; and
a decoding step operable to decode the variable speed

reproduction information and specifying and decoding the pictures to be reproduced at variable speed based on the variable speed reproduction information.

5 23. A program for coding a moving picture signal on a picture-by-picture basis and generating a bit stream, the program causing a computer to execute:

an information creation step of creating variable speed reproduction information for specifying pictures to be reproduced
10 at variable speed; and

a coding step of coding the variable speed reproduction information and adding said information to the bit stream.

15 24. A program for decoding a bit stream on a picture-by-picture basis, the program causing a computer to execute:

an information extraction step of extracting variable speed reproduction information for specifying pictures to be reproduced at variable speed; and

a decoding step of decoding the variable speed reproduction information and specifying and decoding the pictures to be reproduced at variable speed based on the variable speed reproduction information.
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25 25. A bit stream that is generated by coding a moving picture signal on a picture-by-picture basis, comprising variable speed reproduction information for specifying pictures to be reproduced at variable speed.